

ABSTRACT

The invention disclosed is useful in an I/O system of a programmable controller and provides a method and circuitry by which control and diagnostic information is exchanged between a control unit of an I/O module and a plurality of input/output points of the I/O module. A control signal is generated in the control unit in the form of sequential pulse frames such that the control information is defined by a series of pulse width modulated pulses. Each frame includes a no-pulse time period following the review of pulses to mark the end of a frame. Each I/O point receives a control signal of its own and generates a clock pulse in response to each pulse. The clock pulse initiates a sampling of the corresponding pulse and simultaneously initiates return of a diagnostic signal value to the central unit by implementation of firmware in a switch processor. Thus, the control signal provides for sampling of its own content and provides for a return of a diagnostic data bit for each control bit.